



Empowering you to make
smart energy choices

HOME ENERGY SOLUTIONSSM

ENERGY EFFICIENCY CASE STUDY: THE CARSON FAMILY

The Home Energy Solutions (HES) program is available to all Connecticut residents. Specialists will perform an energy assessment, make on-the-spot improvements to make your home weather-tight, replace incandescent light bulbs with energy-saving bulbs, and provide money-saving rebates for additional upgrades. This program is one of several innovative solutions offered by Energize Connecticut and administered by Connecticut's utility companies.

To find energy solutions for your home, call 877-WISE-USE (877-947-3873) or visit EnergizeCT.com

Energize Connecticut and CL&P helped the Carson family:

- Save electricity:
 - 1,329 kilowatt-hours (annual)
 - 8,575 kilowatt-hours (lifetime)
- Save fuel oil:
 - 122 gallons (annually)
 - 1,941 gallons (lifetime)
- Save Money:
 - \$587 (annually)
 - \$6,986 (lifetime)

(All savings shown are estimates, based on current conditions and rates)

The electricity saved on this project over the lifetime of the measures is the equivalent of approximately:

- 9,406 pounds of carbon dioxide (CO₂) emissions avoided, or
- 4,396 pounds of coal not burned, or
- 361 gallons of oil not burned.



AIR LEAKS IN THE CARSON FAMILY'S BEAUTIFUL BAY WINDOW WERE SEALED UP, REDUCING AIR INFILTRATION INTO THE HOME.

Background

Dan and Marsha Carson have lived with their daughter, Alison, and son, Daniel, in Newington, Connecticut since 2001, when they moved from Michigan. Their home, a 31-year-old, 3,000-square foot colonial, was built in 1979 and is heated by oil.

The Challenge

The Carson family knew shortly after moving into their home that it was anything but energy efficient. Though the construction was solid, it lacked many of the energy-saving features available today in residential housing. While Dan and Marsha found the weather in Connecticut to be similar to Michigan's climate, they quickly noticed that more energy was needed to heat and cool their new home, requiring them to change the family budget to account for the higher energy costs. The winters were the most costly due to cold drafts that consistently flowed through the house, causing the furnace to run almost constantly. Additionally, the home's heating and cooling systems were old and inefficient, wasting additional energy and money.

The Solution

The Home Energy Solutions (HES) program proved to be the answer to the Carson family's challenges. With the financial incentives and technical services available, they could make several improvements to their home to reduce its energy consumption and the family's monthly energy bills. "Without the financial incentives, we would

never have pursued the project. We felt with the financial support, we definitely were in a win-win situation. That definitely proved to be the case for us," said Dan.

To help the Carson's make their home more energy efficient, CL&P connected them with an authorized HES program contractor to schedule the service. During the visit, an assessment was first conducted on the home to determine potential energy savings areas, and several opportunities were uncovered. Dan said, "We knew that our systems were older and nowhere near as efficient as the systems provided today, but we didn't know just how inefficient our systems were until the technicians pointed out just how poorly they were performing."

Weatherization: Improves Heating and Cooling Efficiency

Keeping as much conditioned air (heated or cooled) as possible inside a home is the key to reducing home energy consumption. Weatherization is a cost-effective strategy and is the foundation of the HES program. Instrument-guided testing was used to pinpoint critical drafts and air leaks. The HES energy experts first performed a blower door test to determine the cubic feet of air per minute (CFM) flowing through the home. This is done by placing a tarp over the front door with a built-in industrial fan to depressurize the home. This reverses the airflow and enables the technicians to find the sources of air leaks and drafts with the aid of a smoke stick. This test resulted in weather

stripping being placed around three doors, reducing air infiltration into the home by 12 percent. Additionally, foam sealing was injected under the sink and in the basement. A second test, the duct

blaster, was done in the attic to assess air leaks within the home's ductwork system. From this, leaks discovered were sealed, reducing duct loss by 18 percent.

According to Dan, "The improvements made a big difference that we noticed immediately. The house retained heat much better in the winter, and our home is noticeably cooler throughout the summer months. Before on a typical 90-degree summer day, the A/C couldn't keep the house cool enough for our liking. That is no longer the case."

"Without the financial incentives, we would never have pursued the project."
— Dan Carson



CRITICAL GAPS IN THE BASEMENT AND ATTIC WERE ADDRESSED WITH THE APPLICATION OF FOAM INSULATION.

Efficient Use of Hot Water

The HES program also includes water-saving measures. By installing four low-flow faucet aerators, the Carson's reduced the amount of water they use and subsequently reduced the amount of energy needed to heat their home's water. The HES technicians also installed insulation on the domestic hot water (DHW) pipe, lowering energy use even more.

Total lifetime savings from weatherization and water-heating services: 3,726 kilowatt-hours, 1,942 gallons of oil.

Lighting

In addition to heating and cooling improvements, the HES program helped make lighting changes as well. Incandescent light bulbs in several rooms around the

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— Dan Carson

home were replaced with compact fluorescent bulbs (CFLs), which use up to 75 percent less energy and last up to 10 times longer. Twelve 60-watt bulbs were replaced with CFL equivalents that reduced the amount of energy required to just 15 watts each. Three 100-watt incandescent bulbs were replaced with CFL equivalents that only required 25 watts each of power. Five 3-way bulbs, which allow the light to be turned on at different light levels, were exchanged for more energy-efficient CFLs as well.

Total lifetime savings from energy-efficient lighting throughout the home: 4,949 kilowatt-hours.

Additionally, the technicians from the HES program provided the Carson's with a simple power monitor that enables them to regularly check how much power was being used by each of their home's appliances, including the refrigerator, which typically accounts for 25 percent of an average home's electricity bill.

The Carson family has already noticed a difference from all of the changes that were made during the project. "Our energy consumption is down significantly. On average we have reduced our overall energy costs by about 20 percent, which we feel is well worth the time and nominal investment that was required by us," said Dan.

Upon the project's completion, the HES technicians reviewed additional items that the Carson's could address to continue the process of making their home more energy efficient. Since then, issues with insulation in the home have been addressed and new lighting has been added.

The family's experience with the CL&P and the HES program was a very positive one. According to Dan, "I tell everyone I can about the benefits of the program and the positive experience we had. The contractor was absolutely wonderful to deal with throughout the entire process — everything exceeded our expectations. There isn't a single family that couldn't benefit by making use of the Home Energy Solutions program."



COMPACT FLUORESCENT LIGHTBULBS WERE INSTALLED THROUGHOUT THE HOUSE, INCLUDING IN THE BATHROOMS, WHERE FAUCET AERATORS WERE ALSO PROVIDED.

Benefits

- Program services valued at an average of \$1,000 – available to eligible customers for a \$75 - \$99 fee.*
- Energy experts use instrument-guided technology to identify critical air leaks and drafts.
- On-the-spot professional caulking, sealing and hot water pipe insulation.
- Up to 25 energy-efficient CFLs included.
- Exclusive ENERGY STAR® appliance rebates.
- Financing is available for residents interested in additional energy-efficient improvements including insulation and HVAC upgrades.
- Services result in monthly, year-round energy savings.

*Subject to change and funding availability

Find energy solutions for your business.
Call 877-WISE-USE (877-947-3873)
Or visit: EnergizeCT.com